

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Philipp Jung et al. Art Unit : Unknown
Serial No. : Examiner : Unknown
Filed :
Title : ELECTRIC MOTOR CONTROLLED AS AN ELECTROACOUSTIC
TRANSDUCER

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the claims:

Amend claims 1-21 as follows:

- 1. (Once Amended) An appliance for personal use comprising:
a driving mechanism including an electric motor; and
a control stage for controlling a supply of energy from an energy supply to the electric motor wherein the control stage is configured to during off-periods of the electric motor supply the electric motor with an energy signal which is adapted in particular in terms of duration and/or amplitude to cause the electric motor while off and in a capacity as an electroacoustic transducer, to emit audible signals.
2. (Once Amended) The appliance as claimed in claim 1, wherein the electric motor is a low-duty motor comprising a rotor and a stator.
3. (Once Amended) The appliance as claimed in claim 1, wherein the electric motor is an asynchronous, synchronous, stepping, reluctance motor.

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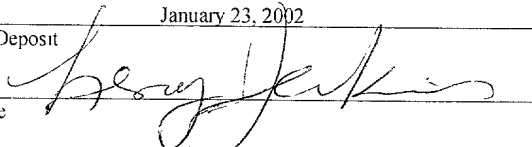
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4. (Once Amended) The appliance as claimed in claim 1, wherein the control stage during operation feeds an analog signal to the electric motor.

5. (Once Amended) The appliance as claimed in claim 4, wherein the analog signal contains a spectrum of the audible signals to be emitted by the electric motor.

6. (Once Amended) The appliance as claimed in claim 5, wherein the analog signal contains frequency mixes for generating at least one of audible speech and music signals from the motor.

7. (Once Amended) The appliance as claimed in claim 4, wherein the analog signal is a unipolar signal.

8. (Once Amended) The appliance as claimed in claim 4, wherein the analog signal is a bipolar signal.

9. (Once Amended) The appliance as claimed in claim 1, wherein during operation the control stage feeds digital signals to the electric motor.

10. (Once Amended) The appliance as claimed in claim 9, wherein the digital signals are pulse-duration-modulated signals and have an essentially constant maximum amplitude.

11. (Once Amended) The appliance as claimed in claim 9, wherein the digital signals have a fundamental frequency that represents the pitch of the audible signals.

12. (Once Amended) The appliance as claimed in claim 1, wherein the energy signal has a time average that lies below a signal threshold value that causes the electric motor to start up.

13. (Once Amended) The appliance as claimed in claim 12, wherein the signal threshold value varies in response to the signal frequency.

14. (Once Amended) The appliance as claimed in claim 1, wherein the energy signal has no frequencies below a frequency threshold value that causes the electric motor to start up.

15. (Once Amended) The appliance as claimed in claim 1, wherein the control stage is configured to generate a time delay between the instant the electric motor is shut off as a driving mechanism and the instant the electric motor is operated as an electroacoustic transducer.

16. (Once Amended) The appliance as claimed in claim 1, wherein the electric motor has a brake.

17. (Once Amended) The appliance as claimed in claim 1, wherein the electric motor has a rotor and a device for positioning the rotor in a defined position of rest when the motor is off.

18. (Once Amended) The appliance as claimed in claim 1, wherein, for optimization of the efficiency in terms of acoustic power output, the electric motor is equipped with an accordingly adapted motor housing or motor housing material.

19. (Once Amended) The appliance as claimed in claim 1, further comprising at least one of ribs, hard parts and mechanical elements located between the housing and the electric motor to optimize the acoustic emission of the appliance.

20. (Once Amended) The appliance as claimed in claim 1, wherein the control stage comprises a signal generator and a driving stage that connects to the energy supply on one side and to the signal generator on the other side.

21. (Once Amended) The appliance as claimed in claim 1, wherein the appliance is constructed as one of a toothbrush, an oral irrigator, a shaver, and a household machine.--

Add claims 22-25:

--22. The appliance as claimed in claim 1, wherein the electric motor is a direct-current motor.--

--23. The appliance as claimed in claim 5, wherein the analog signal is a voltage signal.--

--24. The appliance as claimed in claim 13, wherein the signal threshold value rises with the frequency.

--25. The appliance as claimed in claim 16, wherein the brake is one of a mechanical brake with a constant braking torque and a start-up brake with a braking torque that decreases after the motor starts up.--

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REMARKS

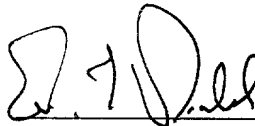
Attached is a marked-up version of the changes being made by the current amendment.

Applicants ask that all claims be examined. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date:

January 23, 2002



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Version with markings to show changes made

In the claims:

Claims 1-21 have been amended as follows:

1. (Once Amended) An appliance [(10) of] for personal use [such as a toothbrush, an oral irrigator, a shaver, a kitchen machine, with] comprising:
a driving mechanism [constructed as] including an electric motor [(12)]; and [with]
a control stage [(14)] for [the] controlling a supply of energy from an energy supply [(16)] to the electric motor [(12) characterized in that] wherein the control stage is configured to during off-periods of the electric motor [(12) the control stage (14) supplies] supply the electric motor with an energy signal which is adapted in particular in terms of duration and/or amplitude [and which] to cause the electric motor [(12), when] while off and in [its] a capacity as an electroacoustic transducer, to emit[s at least in part in the form of] audible signals.
2. (Once Amended) The appliance [(10)] as claimed in claim 1, [characterized in that] wherein the electric motor [(12)] is [constructed as] a low-duty motor comprising a rotor and a stator[, for example, as a direct-current motor].
3. (Once Amended) The appliance [(10)] as claimed in claim 1, [characterized in that] wherein the electric motor [(12)] is [constructed as] an asynchronous, synchronous, stepping, reluctance motor [or the like].
4. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein the control stage [(14)] during operation feeds an analog signal[s] to the electric motor [(12)].
5. (Once Amended) The appliance [(10)] as claimed in claim 4, [characterized in that] wherein the analog signal[, for example a voltage signal,] contains [the] a spectrum of the audible signals to be emitted by the electric motor [(12)].

6. (Once Amended) The appliance [(10)] as claimed in claim [4 or] 5, [characterized in that] wherein the analog signal contains frequency mixes[, for example to generate] for generating at least one of audible speech [or] and music signals from the motor.

7. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 4, [characterized in that] wherein the analog signal is a unipolar signal [(18)].

8. (Once Amended) The appliance [(10)] as claimed in [any one of the claims 1 to 6] claim 4, [characterized in that] wherein the analog signal is a bipolar signal [(20)].

9. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims 1 to 3] claim 1, [characterized in that] wherein during operation the control stage [(14)] feeds digital signals to the electric motor [(12)].

10. (Once Amended) The appliance [(10)] as claimed in claim 9, [characterized in that] wherein the digital signals are pulse-duration-modulated signals [(22)] and have [in particular] an essentially constant maximum amplitude.

11. (Once Amended) The appliance [(10)] as claimed in claim 9 [or 10], [characterized in that the] wherein the digital signals have a fundamental frequency [of the digital signal] that represents the pitch of the audible signals.

12. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that the] wherein the energy signal has a time average [(24) of the signal (18, 20, 22)] that lies below a signal threshold value [(26)] that causes the electric motor [(12)] to start up.

13. (Once Amended) The appliance [(10)] as claimed in claim 12, [characterized in that] wherein the signal threshold value [(26)] varies in response to the signal frequency [and in particular rises with the frequency].

14. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein the energy signal [(18, 20, 22)] has no frequencies below a frequency threshold value that causes the electric motor [(12)] to start up.

15. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that provision is made for] wherein the control stage is configured to generate a time delay between the instant the electric motor [(12)] is shut off as a driving mechanism and the instant the electric motor [(12)] is operated as an electroacoustic transducer.

16. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein the electric motor [(12)] has a brake [(28) for example a mechanical brake with a constant braking torque, or a start-up brake with a braking torque that decreases after the motor starts up].

17. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein the electric motor [(12)] has a rotor and a device [(30)] for positioning the rotor in a defined position of rest when the motor is off.

18. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein, for optimization of the efficiency in terms of acoustic power output, the electric motor [(12)] is equipped with an accordingly adapted motor housing or motor housing material.

19. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that provision is made for] further comprising at least one of

ribs, hard parts [or similar] and mechanical elements [(32)] located between the [appliance (10) or appliance] housing [(34)] and the electric motor [(12)] to optimize the acoustic emission of the appliance [(10) or appliance housing (34)].

20. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that] wherein the control stage [(14) is formed by] comprises a signal generator and a driving stage [(36)] that [is connected] connects to the energy supply [(16)] on [the] one side and to [a] the signal generator [(38)] on the other side [and, where applicable, to additional electronic components].

21. (Once Amended) The appliance [(10)] as claimed in [any one of the preceding claims] claim 1, [characterized in that it] wherein the appliance is constructed as one of a toothbrush, an oral irrigator, a shaver, and a household machine [or the like].

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